School Segregation and Disparities in Urban, Suburban, and Rural Areas

John R. Logan and
Brown University

Julia Burdick-Will
Johns Hopkins University

Abstract

Much of the literature on racial and ethnic educational inequality focuses on the contrast between Black and Hispanic students in urban areas and white suburban students. This study extends past research on school segregation and racial/ethnic disparities by highlighting the importance of rural areas and regional variation. Although schools in rural America are disproportionately white, they nevertheless are like urban schools, and disadvantaged relative to suburban schools, in terms of poverty and test performance. The group most affected by rural school disadvantage is Native Americans, who are a small share of students nationally but much more prominent and highly disadvantaged in rural areas, particularly in some parts of the country. These figures suggest a strong case for including rural schools in the continuing conversation about how to deal with unfairness in public education.

Schools vary widely in characteristics that are widely believed to be consequential for the students who attend them, including racial/ethnic composition, poverty concentration, and average performance of classmates. It is well known that these differences are patterned by space (e.g., the disparities between many central city school districts and those in the surrounding suburbs) and by the race and ethnicity of enrolled students (e.g., the disadvantages of schools attended by blacks and Hispanics in comparison to whites and Asians). In this study, we describe the nature and extent of these differences for public elementary schools across the United States in 2010–2011. We extend past studies in two ways. First, most studies of school segregation and educational inequality are limited to schools in metropolitan regions (note, for example, that a recent review of school segregation [Reardon and Owens 2014] cited no study including rural schools). We pay particular attention to rural schools, showing that rural schools have much in common with (as well as some large differences from) schools in central cities. Second, in addition to comparing average characteristics between urban, suburban, and rural zones, we also look within each of them, gauging racial and ethnic segregation across schools and disparities in the schools attended by students of different racial/ethnic background. We find substantial inequalities in all three zones.

Direct correspondence to John Logan, Department of Sociology, Brown University, Providence RI 02910 (john_logan@brown.edu), phone 401-863-2267, fax 401-863-3213.

This is a national study. We are aware that different patterns in different parts of the country could be obscured in the national averages. For this reason we repeat our analyses separately by geographic region and again in those specific urban or rural areas where each racial/ethnic group is most highly concentrated. Despite some variations, the area-specific analyses mainly replicate the national-level results.

Our emphasis on rural America is especially useful for highlighting disadvantages that receive little attention for two racial groups that are disproportionately found outside metropolitan areas – white and Native American children. Because whites are mostly found in relatively advantaged urban and suburban schools and are typically used as a point of comparison to black and Hispanic children in those contexts, their situation in rural schools is mostly overlooked. Native Americans are rarely included in studies of metropolitan schools due to their small numbers. They are a tiny share of students at a national level (about 1% as shown below) and only 3% of students even in rural schools. But we find that in rural American these children are highly segregated from other groups in the same area, and consequently they attend schools that are disproportionately Native American (40% and more in some regions). The poverty level of their classmates is as high as in central city schools (over 60%), and test score performance in schools they attend is unusually low.

Segregation and school disparities

American public schools remain highly segregated despite major changes in the 1970s, when court orders and new expectations eliminated *de jure* segregation (Clotfelter 2004; Logan, Zhang, and Oakley 2017). A primary consequence of segregation is the high level of inequality in educational opportunity between white or Asian children and black or Hispanic children (Orfield and Yun 1999, Logan, Minca, and Adar 2012). Disparities appear as large differences in Individual students' test scores (Stiefel, Schwartz and Chellman 2008, p. 527) and drop-out rates (Mickelson, 2003). In this study, we focus not on these effects on individual students but rather on differences in the schools that they attend. Few studies have reported direct measures of school quality, although it is widely believed that minority students attend worse schools than non-Hispanic whites (Bankston & Caldas, 1998; Roscigno, 1998). There is more evidence that minority children attend higher poverty schools, partly because they are more highly concentrated in central cities (Saporito and Sohoni 2007, Orfield & Lee 2005, Logan 2002). This finding is especially relevant in the context of this special issue focused on the anniversary of the Coleman Report, because that report (Coleman et al., 1966) concluded that racial differences in school outcomes were primarily attributable to socioeconomic differences between races. Coleman argued that predominantly white schools tended to enroll students from higher socioeconomic backgrounds and it was for this reason that these schools' academic performance was better than that of predominantly minority schools. He found, in short, that apparent contextual effects were compositional (see also Hauser, Sewell & Alwin, 1976). If there was a contextual effect, in Coleman's view, it was the effect of class composition (for related evidence, see Chaplin 2002, Jencks & Mayer, 1990; Gamoran, 1996).

Rural schools may complicate the story because rural areas in most of the United States are disproportionately white, yet at the same time they suffer high poverty rates (Lichter and

Brown 2011). Much of the literature on nonmetropolitan schools reflects on the poor employment prospects of rural youth and its implications for educational achievement and aspirations (Carr and Kafalas 2009, Irvin et al 2011, Perin, Schafft and Meece 2014, Sherman and Sage 2011). Unfortunately, this research typically limits itself to the rural situation without making explicit comparisons to metropolitan areas. Some studies add dummy variables for urban, suburban, and rural locations to multiple regression models to test whether rural students are distinctive (Fan and Chen 1999). To our knowledge, however, there has been no national study of segregation and racial/ethnic disparities in nonmetropolitan areas, nor has there been a study comparing metropolitan and nonmetropolitan areas on these dimensions.

One partial exception is a study by Logan, Minca, and Adar (2013, see also Logan and Burdick-Will 2016) that included a national sample of schools. They conducted a cluster analysis to identify general categories of schools based on such characteristics as racial composition, poverty, test scores, and metropolitan location. They found that the major clusters did not neatly divide schools into urban, suburban, and rural categories. One cluster seems to represent typical suburban characteristics, with large numbers of white students (87 percent on average), low levels of free and reduced lunch eligibility (21 percent on average) and highly ranked schools (averaging at the 68th percentile on test scores compared with others in the same state). However, only 71 percent of schools in this cluster are in the suburbs. The others are split evenly between cities and rural areas. Two clusters have a plurality of schools located in central cities, and their characteristics approximate the usual stereotype of urban problems: they have high shares of minority children, around two-thirds of students are free-lunch eligible, and they are also the poorest performing schools on standardized tests. Yet both suburban and non-metro schools are also well represented in these clusters. Even the cluster that was most likely to be found in rural areas (distinguished partly by overrepresentation of Native American students) included just as many suburban and central city schools as it did non-metro schools. Hence there is overlap in characteristics across these three kinds of locations.

In related research (Burdick-Will and Logan 2017) we compared city, suburban and rural schools. We found that inner suburban schools are somewhat more like central city schools, while schools on the suburban periphery are more like rural schools. On average these locational classifications identify very different kinds of schools in terms of racial/ethnic composition, poverty, and test scores. Yet in the current study we must keep in mind that there are also important variations within geographic zones. Indeed, these variations are the source of disparities across racial/ethnic groups that attend different schools in the same zone.

There are also likely to be variations in patterns in different parts of the country. An important reason is that there is so much regional variation in racial/ethnic composition. Although whites have a major presence in most areas, the shares of other groups vary greatly. Black students are disproportionately found in urban areas, but they are a much smaller presence in the West than in the rest of the country, and they are also found in large shares in the rural South. Hispanics have historically been found disproportionately in the Northeast, in Florida, and in the Southwest, and Asians in the Northeast and West. But these

predominantly immigrant groups are increasingly found in new destinations, including nonmetropolitan areas (Lichter 2012).

Research design

Our overall purpose is to provide an assessment of variation in schools within and between urban, suburban, and rural areas for all public schools in the U.S. in 2010–2011. Our research design incorporates two critical choices. First, unlike most past research, we ignore district boundaries and focus solely on the location of individual schools, coded as central city, suburban, or rural. In many areas, especially in the South, school districts are organized at the county level, and they include both city and suburban schools. In other cases, schools that fall outside the boundaries of a metropolitan area (which we define as rural) are in the same district as schools within those boundaries. While the fact of being administered within the same district likely results in some degree of homogeneity in school characteristics within the district (possibly due to choices about attendance zones or other school assignment policies, or possibly due to common curricula or teacher recruitment or budgetary resources) our attention is focused on a broader pattern. What is the variation in school racial/ethnic composition, poverty, and test performance within and between urban, suburban, and rural areas? Where, overall, are conditions better or worse, more equal or less equal?

Our second major choice is to focus on elementary schools. They are smaller than other schools and are likely to draw students from a smaller catchment area, so we would expect to find clearer evidence of segregation and other disparities at this level. Because grade ranges in schools vary greatly across districts, we define an "elementary school" here as one that includes at least one grade between kindergarten and sixth grade. As far as possible we consider only data for children in these elementary grades.

Data

Data on all public schools in 2010–11 are provided by the National Center for Education Statistics (NCES). NCES provides data on the student body of each school through its Common Core of Data (NCES 2012). Race/ethnicity is reported in the following categories: non-Hispanic white, black, Hispanic, Asian, and Native American/other races. NCES also reports for most schools the number of students who are eligible for free or reduced price lunches, which we use as an indicator of poverty. Eligibility for free or reduced school lunches is not separately reported by grade level, and therefore we assume that the share of free/reduced price lunch children is the same for elementary grade students as for the whole school. The Common Core of Data also include the total number of students and the precise geographic location of each school.

Testing data are calculated from the percent of students who meet state proficiency levels in reading and mathematics on tests administered by each state, reported to and made available by NCES (EDFacts 2013a, EDFacts 2013b). We use 4th graders to represent the achievement levels of elementary students because this is the elementary grade level for which test scores are most often available. When test score data are not available for 4th graders we use scores

from 5th graders. If there are no 4th or 5th graders we take the scores of 3rd graders. The content and scoring of these tests vary widely across states. However, these are the most comprehensive testing data. The National Assessment of Educational Progress (NAEP) provides scores that are comparable across states, but these are only available for a sample of students within a small sample of U.S. schools. To make the state test scores more meaningful, we have recalibrated the percent passing scores as percentiles of school performance within the state (following the approach by Logan, Minca and Adar 2012). A complication in using these scores is that in many cases NCES reported a score range (sometimes a range as large as 15 or 20 percentage points) rather than a specific score. For each reported range, we determined the average score among schools in the nation with reported specific scores in that range. We then use the imputed precise scores to calculate a percentile within each state. This creates a rank ordering within every state. From the perspective of a parent who is considering a range of school options, almost always within a state, these percentiles are meaningful. A school at the 20th percentile is much worse than one at the 50th percentile in any state, regardless of differences in the states' test content or proficiency cutoffs that we suspect are considerable.

Methods of analysis

Our purpose is to understand differentiation between and within the traditional large census categories of urban, suburban, and rural. To do this we code every school based on its location using the school's geographic coordinates (reported by NCES). GIS procedures were used to locate schools within principal cities of Metropolitan Statistical Areas (MSAs), the suburban remainder of the MSA, or outside of an MSA using the Census Bureau's geographic definitions as of 2010. To study differentiation of rural schools within a delimited area, we introduce the concept of metro-plus zone, which is based on metropolitan regions and includes the rural schools that are located nearest to the outer boundaries of a given metro. We define "nearest" by using GIS software to find the nearest metropolitan principal city to every rural school. Rural schools are then considered to be part of that nearest principal city's metro-plus zone (see Burdick-Will and Logan 2017).

We also wish to make a distinction between different parts of the country. In the following analyses this distinction is made in two different ways. The first is simply by census region (Northeast, Midwest, South, and West). We use standard census categories except for Texas. The census treats Texas as a Southern state. Because its large Hispanic population makes it more like Western states, we treat Texas schools as being in the West. The second is by racial/ethnic composition. Although whites are well represented in most areas, other groups tend to be highly represented in some metro-plus zones but relatively scarce in others. And a given group may be disproportionately represented in one portion of the metro-plus zone but not others. For example, as we have already noticed, Asians under generally under-represented in rural areas, but Native Americans are over-represented, especially in areas containing reservations. In our final analyses, we identify the metro-plus zones or portions of zones where each group is most highly concentrated, those in the top decile of group share. To be clear, in many cases the top decile for one portion (say, suburban) of zones does not include the top decile of another portion (say, rural) of the same metro-plus zone. We then

focus on disparities within each of these locales where the largest share of members of a given group is found.

Table 1 provides information on the actual group share of total enrollment in the selected urban, suburban, and rural portions of metro-plus zones and in entire over-represented zones. White presence is especially pronounced in schools in the most predominantly white rural and suburban portions, accounting for 94% or 95% of the elementary enrollment in these locations. There is somewhat more diversity in over-represented urban areas, where whites average 83% of enrollment. Black students are nearly three-quarters of the enrollment in the most predominantly black urban areas and slightly more than half in their over-represented rural areas. Their relatively small presence in suburbs, however, is reflected in the finding that even where they are most highly represented, they are only 31% of the total. Hispanics are a majority of students in the top Hispanic zones, as high as 70% in urban areas, and 55% to 58% in suburban and rural areas. Asians and Native Americans are present in much smaller shares even in these areas of high concentration. What most stands out is that Native Americans constitute as much as 20% of enrollment in their most concentrated rural areas.

Our analyses use standard measures of segregation and group disparities among schools within the same metro-plus area or within the urban, suburban, or rural portion of the area. One measure is the Dissimilarity Index (D), which is used here to describe how similarly white students and students of a minority group are distributed across schools. If all schools contained the same share white students and minority students, D would equal zero; D would achieve a maximum value of 100 if every school were either all-white or all-minority. In most studies of segregation, values of 60 and above are treated as "very high," values between 40 and 60 are considered more moderate, and values under 40 are considered "low." For other types of disparity, we utilize exposure indices, defined as the characteristic of the school that the average group member attends. "Group isolation" is the percentage of classmates who have the same racial/ethnic background. It is useful as a descriptive measure of segregation, but (because it evidently is much affected by the overall share of group members in a set of schools or in the nation) it should be interpreted in relation to that overall share. For example, we find (table 3 below) that the average white elementary student in the U.S. attends a school where enrollment is 72.8% white. This represents a high level of segregation because we also found (Table 2) that only 51.4% of elementary students are white, so 72.8 is highly disproportionate. We also calculate three other exposure indices: poverty of classmates (share of classmates for the average group member who are eligible for free/reduced lunches) and reading and math performance (the school's percentile on state reading/math tests in the school attended by the average group member). These measures refer to characteristics of children's schools, not their own likelihood of being poor or their own test performance.

Results

Urban, suburban, and rural schools across the nation

Table 2 reports simple descriptive statistics for schools in the nation as a whole and in different metropolitan locations. We note first that there are more students in suburban areas (13.5 million) than in urban or rural areas combined (12.2 million). A little under one-third

of students attend urban schools, and 16 percent attend schools in a rural area. Whites are barely a majority in all schools but still there are more than twice as many white students (13.2 million) as the next largest group (Hispanics, 6.2 million). Native Americans (less than 300,000) are greatly overshadowed by the other groups.

The overall differences in racial composition between area categories are large. Whites constitute just over half of overall elementary enrollment, but less than a third of urban enrollment while a clear majority of suburban children (nearly 60%) and an even larger share of rural children (71%). The next largest group is Hispanic, reflecting the transformation of the minority population over recent years. Almost a quarter of students nationally are Hispanic. Hispanics now comprise the largest number of students in urban schools. There is nearly an equal number of Hispanics in suburban schools, but they are under-represented in rural enrollment. Black students are most likely to be found in urban schools (where almost half of them attend school), but they are almost equally under-represented in suburban and rural schools (11–12%). Asians are found in much smaller numbers, also a larger share in urban schools and a much smaller share (only 1%) in rural schools. Native Americans, in contrast, are most highly represented in rural schools (where 44% of them are enrolled), but even here they are only 3% of the total.

Setting aside racial composition, suburban schools are greatly advantaged in comparison to both urban and rural schools. They have lower shares of students eligible for free or reduced price lunches (our indirect indicator of poverty) – 43% compared to 63% in urban schools and nearly as high a share (58%) in rural schools. Patterns of test performance also favor suburban schools, with reading and test scores lowest in urban schools and nearly as low in rural schools.

These patterns tend to favor white students, because a large majority of white students are suburban. At the same time, though, because whites are such a large share of rural students, they are also disadvantaged by the poverty and poor test performance of rural schools. Black, Hispanic, and Asian students are disadvantaged by their higher likelihood of attending urban schools. Native American students, in contrast, are disadvantaged by their much higher likelihood (44%) of attending rural schools.

Racial/ethnic disparities: an overview

Table 3 directly measures racial/ethnic disparities at a national level and within urban, suburban, and rural areas. Segregation is measured by the Index of Dissimilarity with whites and by the group's isolation in the metro-plus area (or the urban, suburban, or rural portion of the area) where the average group member is enrolled. Other indices (poverty of classmates and reading/math performance) refer to the school attended by the average group member (these group-weighted averages can also be described as exposure indices).

We find an average segregation (D) between whites and blacks at the national level of 63.0. This means that the average black student in the nation attended a school in a metro-plus area where segregation across schools was 63.0. This represents a high level of segregation, although reduced from the levels prior to 1970 when many districts operated separate schools for black students (Logan, Zhang, and Oakley 2017). In fact, it is about the same as

the level of residential segregation across metropolitan area census tracts as reported in 2010 (Logan 2013). Black-white school segregation was highest in urban schools (62.2), moderately high in suburbs (54.4), but considerably lower in rural areas (44.4). Hispanics and Native Americans are modestly less segregated from whites. Hispanics, like blacks, are most segregated in urban areas and least in rural schools. However, the opposite is true for Native Americans. Their segregation is highest in rural schools, which is where they are also a larger share of the population. Finally, Asian students are moderately segregated in all portions of metro-plus areas.

Measures of group isolation necessarily directly reflect the relative shares of group members in total school enrollment. Hence white isolation is very high in the average metro-plus area, and especially in the rural portion where they constitute the highest share of students. Isolation also is affected by segregation, and every group attends schools where they are a larger share of students than in the whole area. For example, we found nationally that black students are only about 16% of national elementary enrollment and Hispanics about 24%, but the average black and Hispanic students are both found in Table 3 to attend a school that is over 50% black or Hispanic. The largest imbalance is found for Native Americans in rural schools. Nationally they are 3.1% of rural enrollment, but on average they attend rural schools that are 50.3% Native American. Hence a very small minority population can be a major component of students in certain areas.

The table shows that poverty of classmates differs greatly across groups and across metropolitan zones. Nationally the average white or Asian student attends a school where about 40% of students are eligible for free/reduced price lunches. The values for black, Hispanic, and Native American students are all above 60%, creating a 25–30-point differential with whites and Asians. For every group, there is also a differential, generally in the range of 10–20 points, between suburban schools and urban or rural schools. The disparity between urban and suburban schools is well known, but in fact poverty in schools attended by the average white student is highest in rural areas, and the same pattern holds for Asians and Native Americans. Poverty is almost the same in urban and rural schools for black students. And for Hispanics, both rural and urban schools are poorer than suburban schools, although poverty in urban schools in highest for Hispanic students.

The disparities in reading and math performance follow a similar pattern. Whites and Asians attend schools with the highest test scores, with Hispanics, Native Americans, and especially black students found on average in the worst performing schools. Suburban schools again have a large edge over urban and rural schools for all groups. White and Native American students have the least favorable placement in rural schools, while black and Hispanic students are most disadvantaged in urban school placement.

To summarize, we find considerable segregation nationally and even within urban, suburban, and rural portions of metro-plus areas. This segregation is reflected in the composition of schools that each group attends, with especially high levels of isolation (in comparison with the group's share of total enrollment in the locale) in urban schools for blacks and Hispanics and in rural schools for whites and Native Americans. Segregation translates in disparities in school quality that strongly favor white and Asian students overall. But although researchers

are familiar with the disadvantages of urban schools, especially for blacks and Hispanics, we show that rural schools are in some ways equally disadvantaged, especially for whites and Native Americans.

Variations by census region

We now replicate these analyses within each of the four major census regions of the country. Table 4 repeats Table 3 for the Northeast, Midwest, South, and West. While we expect and find many similarities between regions, we discuss here only the results for Native Americans and whites with an emphasis on rural schools. Most findings for other groups and settings are consistent with results in Table 3 and/or prior studies in metropolitan contexts.

Consider first the results for rural Native Americans, the least known group in the least studied portion of metro-plus areas. Nationally 44% of Native American elementary students are in rural schools. The largest numbers are in the West (52,000 or 40% of those living in the West) and the South (47,000, 50% of the total). They are very highly segregated from whites in every region except the South. Their level of isolation is disproportionately high in all locations, but clearly highest in rural America. Native Americans attend schools that are 26% Native American in the rural Northeast and 39% in the South. More extreme values are found in the rural Midwest (46%) and especially the West (63%). These are areas where many live on reservations and attend predominantly Native American schools. They are also the locales where the disadvantages of their schools – though apparent in all settings – stand out the most. In the rural portions of Midwestern metro-plus zones, for example, the average Native American's school is 65% poor and scores only around the 25th percentile on reading and math tests. In the rural West, average poverty is even higher (73%) and test scores even slightly lower (22–23rd percentile).

Let us turn now to the situation of whites in rural schools. There are 2.9 million white elementary students in rural areas. The largest numbers are in the Midwest and South, over a million in each region, comprising 27–28% of the total white students in those regions. The very high share of whites in these areas combines with a moderate degree of segregation to create quite high levels of isolation. The average rural white elementary student attends a school that is 70% or more white in the South and West and around 90% white in the Northeast and Midwest. In urban and suburban settings, segregation distances white students from the poverty experienced in schools typically attended by minority students. To some extent this distancing also occurs in rural areas, since rural whites' schools have lower free/reduced lunch levels than those of rural blacks, Hispanics, or Native Americans. But at the same time rural schools in the South and West are where white students' have the highest exposure to poverty (even higher than in urban schools), while in the Midwest their urban and rural schools are equally poor. Only in the Northeast do whites' urban schools have appreciably higher poverty than whites' rural schools.

A similar pattern appears in test scores. In the South and West, rural whites' schools have worse reading and math performance than the urban schools that they attend, and in the Northeast and Midwest they are about equally low performing. Segregation within the rural setting does shelter whites somewhat from the disadvantages of schools attended by minority children, but Table 4 shows that the differentials between whites on the one hand,

and blacks, Hispanics, and Native Americans on the other, are smaller in rural areas than in urban or suburban locales. More than in other areas, white students share the disadvantages of their schools with minority students.

Patterns in each group's areas of concentration

We now delve into the national-level patterns in another way, focusing on settings that are the most "typical" for a given group in the following sense – these are settings where group members are an especially high share of total enrollment. The "national" column in Table 5 reports the average values for group members in the metro-plus zones that are in the top decile of group concentration (the approximately 37 of the total 366 zones where they are the highest percentage of enrollment). The "urban" column selects for each group the urban schools in the metro-plus zones where the group has the highest share of urban enrollment, with similar independent selections for suburban and rural portions. How do these specific "ethnic pockets" compare with the average national situation of group members shown in Table 3? Again, rather than attempt to discuss all the results reported here, we focus on the case of rural Native Americans and rural whites.[1]

For Native Americans, levels of segregation (D) are similar in these over-represented areas to the national averages. Isolation, necessarily, is higher because we have selected areas with the largest group presence. Yet in these specific metro-plus areas, Native Americans' presence is appreciable. In the metro-plus areas overall nearly half of the students are Native American in the school attended by the average Native American, and they are among the larger groups in schools they attend in the suburbs (33%) and they are a majority in their rural schools (60%). Although we anticipated that such a large presence might constitute a disadvantage, we find that poverty exposures and test performance for Native Americans are quite similar in Table 5 to the national averages found in Table 3.

Are white students' schools distinctive in the most predominantly white areas of the country? White isolation, of course, is much higher in these areas (reaching 93 at the metro-plus zone scale). Exposure to poverty ranges from 41% (suburban, 7–8 points higher than the national average) to 55% (rural, about the same as the national average). Reading and math performance of whites' schools is slightly lower in these areas, while scores in rural areas similarly lag those in the suburbs.

Discussion & Conclusion

Findings presented here reinforce previous studies that documented continuing segregation in metropolitan schools, inequalities between urban and suburban schools, and disparities between relatively advantaged white and Asian students in comparison to black and Hispanic students. These are the issues that motivated the Coleman Report decades ago, and we find cause for continuing concern.

---

[1]Because Asians are typically only a small share of students in much of the country, it is also interesting to note that in these selected areas Asians average as much as 28% of enrollment in the schools they attend, and as much as 37% on average in urban schools. Nevertheless, they maintain considerable advantages in terms of poverty concentration and school test performance.

We have extended the scope of segregation studies to include a systematic comparison to rural schools. We used the simple device of expanding metropolitan boundaries to metro-plus zones that include all of the rural schools that are closest to it and designating these schools as the "rural portion" of the larger area. (In another vocabulary, these might be described as the "catchment areas" of major cities.) We can then compare these rural schools to schools in the nearest, most relevant urban and suburban schools. By ignoring district boundaries, we avoid having to consider how to measure segregation in districts that often have only one or two schools, and where the major differentiation is between rather than within districts.

The main finding in this respect is that rural schools – despite being disproportionately white – face similar disadvantages as do urban schools. Big city schools naturally are more visible because of their larger size, but we would argue that rural schools, which enroll more than four million elementary children, also deserve a place on the policy agenda. The issues of concentrated poverty and poor test performance are similar in both. Because of the smaller size of rural schools and the continuing issue of population loss in rural America, these schools may face unique problems of providing specialized classes, and teacher recruitment may be more difficult in low-density areas where the range of other job opportunities may be narrower. The charter school alternative that has been popular in some districts is uncommon in rural areas, perhaps obstructed by low densities, long travel distances, and difficult teacher recruitment. Possibly also the obstacles to student success are different in rural areas or where schools are majority white than in urban, predominantly minority schools. Therefore, it is not obvious whether the same policies that are traditionally proposed to support urban schools would apply equally to rural ones, but the question needs to be raised. There is much that we do not know because research on rural public education has often been pursued separately from research in metropolitan areas.

Taking rural schools into account profoundly alters the racial/ethnic component of the educational segregation/inequality discussion. Study after study has documented the large gaps between city and suburban schools, the associated differentials in their enrollment of black and Hispanic students, and the disparities experienced by black and Hispanic students both across the city-suburb divide and within both city and suburban contexts. Giving attention to rural America brings two other experiences into play. The first is the great challenges for Native American education, present but rarely documented in cities and suburbs but unavoidable in the rural context. We have shown that Native Americans are a large share of enrollment in schools that the average group member attends, and the class composition and academic performance of these "Native American" schools pose concerns very similar to those raised in discussions of black and Hispanic public schooling.

The second outcome of paying attention to rural schools is associated with the fact that in much of the country they are overwhelmingly white. And though whites attend schools that are somewhat less poor and better performing in rural areas than do blacks, Hispanics, and Native Americans, their schools, too, are relatively poor and underperforming. What is generally recognized as white advantage is complicated by the disadvantage faced by whites who (like Native Americans) are disproportionately found in rural areas. In terms of absolute numbers, there are more white elementary students in rural schools (2.91 million) than there

are black students (1.96 million) or Hispanic students (2.85 million) in urban schools. These figures suggest a strong case for including rural schools and the special situations of rural Native American and white children in the continuing conversation about how to deal with unfairness in public education.

Acknowledgments

References

Bankston CL III, Caldas SJ. Race, poverty, family structure, and the inequality of schools. Sociological Spectrum. 1998; 18:55–76.

Burdick-Will, Julia, Logan, John R. Schools at the Rural-Urban Boundary – Blurring the Divide? Annals of the American Academy of Political and Social Science. 2017 forthcoming.

Carr, Patrick J., Kefalas, Maria J. Hollowing out the middle: The rural brain drain and what it means for America. Boston: Beacon Press; 2009.

Chaplin, D. Estimating the impact of economic integration. In: Century Foundation. , editor. Divided we fail: coming together through public school choice. New York: Century Foundation Press; 2002. p. 87-113.

Clotfelter, Charles T. After Brown: The Rise and Retreat of School Desegregation. Princeton, NJ: Princeton University Press; 2004.

Coleman, JS., Campbell, E., Hobson, C., McPartland, J., Mood, A., Weinfield, FD., York, R. Equality of educational opportunity. Washington, DC: U.S. Government Printing Office; 1966.

EDFacts. Achievement results for state assessments in mathematics: school year 2010–11. Washington, DC: U. S. Department of Education; 2013a. https://explore.data.gov/Education

EDFacts. Achievement results for state assessments in reading/language arts: school year 2010–11. Washington, DC: U. S. Department of Education; 2013b. https://explore.data.gov/Education

Fan, Xitao, Chen, Michael J. Academic achievement of rural school students: a multi-year comparison with their peers in suburban and urban schools. Journal of Research in Rural Education. 1999; 15(1):31–46.

Gamoran, A. Effects of schooling on children and families. In: Booth, A., Dunn, JF., editors. Family-school links: how do they affect educational outcomes?. Hillsdale, NJ: Erlbaum; 1996. p. 107-114.

Hauser, R., Sewell, W., Alwin, D. High school effects on achievement. In: Sewell, W.Hauser, R., Featherman, D., editors. Schooling and achievement in American society. London: Academic Press; 1976. p. 309-42.

Irvin MJ, Meece JL, Byun S, Farmer T, Hutchins B. Relations of community, family, and school contexts to rural youth's educational achievement and aspirations. Journal of Youth and Adolescence. 2011; 40:1225–1242. [PubMed: 21755376]

Jencks, C., Mayer, E. The social consequences of growing up in a poor neighborhood. In: L, LJ., McGeary, MGH., editors. Inner-city poverty in the United States. Washington, DC: National Academy Press; 1990. p. 111-186.

Lichter, Daniel T. Immigration and the New Racial Diversity in Rural America. Rural Sociology. 2012; 77:3–35. [PubMed: 26478602]

Lichter, Daniel T., Brown, David L. Rural America in an urban society: Changing spatial and social boundaries. Annual Review of Sociology. 2011; 37:565–592.

Logan, John R. Choosing segregation: racial imbalance in American public schools, 1990–2000. Report of the Lewis Mumford Center. 2002 Mar 29. [http://www.s4.brown.edu/cen2000/SchoolPop/SPReport/SPDownload.pdf]

Logan, John R. The Persistence of Segregation in the 21st Century Metropolis. City & Community. 2013; 12(2):160–168.

Logan, John R., Burdick-Will, Julia. School segregation, charter schools, and access to quality education. Journal of Urban Affairs. 2016; 38(3):323–343. [PubMed: 27616813]

Logan, John R., Minca, Elisabeta, Adar, Sinem. The geography of inequality: why separate means unequal in American public schools. Sociology of Education. 2012; 85(3):287–301.

Logan, John R., Zhang, Weiwei, Oakley, Deirdre. Court Orders, White Flight, and School District Segregation, 1970–2010. Social Forces. 2017 forthcoming.

Mickelson R. When are racial disparities in education the result of racial discrimination? a social science perspective. Teachers College Record. 2003; 1056:1052–1086.

NCES (National Center for Education Statistics). Public elementary/secondary school universe survey data 2010–11. Washington, DC: U.S. Department of Education; 2012. http://nces.ed.gov/ccd/pubschuniv.asp

Orfield, Gary, Lee, C. Why segregation matters: poverty and educational inequality. Cambridge, MA: The Civil Rights Project at Harvard University; 2005.

Orfield, Gary, Yun, John. Resegregation in American Schools. Cambridge, MA: The Civil Rights Project, Harvard University; 1999 Jun. http://w3.uchastings.edu/wingate/PDF/Resegregation_American_Schools99.pdf [accessed 12/14/10]

Petrin R, Schafft KA, Meece J. Educational sorting and residential aspirations among rural high school students: What are the contributions of schools and educators to the rural brain drain? American Educational Research Journal. 2014; 51(2):294–326.

Reardon, Sean F., Owens, Ann. 60 Years after Brown: Trends and consequences of school segregation. Annual Review of Sociology. 2014; 40(2014):199–218.

Roscigno V. Race and the reproduction of educational disadvantage. Social Forces. 1998; 76:1033–1060.

Saporito S, Sohoni D. Mapping educational inequality: concentrations of poverty among poor and minority students in public schools. Social Forces. 2007; 853:1227–1253.

Sherman, Jennifer, Sage, Rayna. 'Sending Off All Your Good Treasures': Rural Schools, Brain-Drain, and Community Survival in the Wake of Economic Collapse. Journal of Research in Rural Education. 2011; 26(11):1–14.

Stiefel L, Schwartz A, Chellman C. So many children left behind: segregation and the impact of subgroup reporting in no child left behind on the racial test score gap. Educational Policy. 2008; 21:527–541.

Table 1

Shares of group members among students in the top decile of locations (for whole metro-plus zones or portions of zones)

Racial/ethnic group	Total	Urban	Suburban	Rural
White	92%	83%	94%	95%
Black	41%	73%	31%	51%
Hispanic	60%	70%	55%	58%
Asian	9%	15%	8%	4%
Native American	10%	4%	9%	20%

Table 2

Characteristics of Elementary Schools by Metropolitan Location, 2010–2011

	All schools	Urban	Suburban	Rural
Number of Schools	67,977	19,339	32,529	16,109
Elementary enrollment				
White	13,227,906	2,455,764	7,865,172	2,907,657
Black	4,016,028	1,960,722	1,609,862	443,974
Hispanic	6,246,869	2,847,098	2,905,605	495,455
Asian	1,200,429	519,348	637,717	42,009
Native American	288,515	64,007	97,485	126,850
Total	25,760,284	8,102,157	13,539,632	4,118,495
Area share of group national total				
White	100.0	18.6	59.5	22.0
Black	100.0	48.8	40.1	11.1
Hispanic	100.0	45.6	46.5	7.9
Asian	100.0	43.3	53.1	3.5
Native American	100.0	22.2	33.8	44.0
Total	100.0	31.5	52.6	16.0
Group share of area total:				
White	51.4	30.3	58.1	70.6
Black	15.6	24.2	11.9	10.8
Hispanic	24.3	35.1	21.5	12.0
Asian	4.7	6.4	4.7	1.0
Native American	1.1	0.8	0.7	3.1
Free or Reduced Lunch	51.5	62.5	42.9	58.0
Reading proficiency (percentile within state)	45.0	37.4	50.7	41.4
Math proficiency (percentile within state)	44.7	38.0	49.7	41.7

Table 3

National average disparities among schools by students' race/ethnicity, nationally and within urban, suburban, and rural zones

	National	Urban	Suburban	Rural
Segregation from whites (D)				
Black	63.0	62.2	54.4	44.4
Hispanic	56.0	56.4	49.7	36.8
Asian	49.6	45.1	45.6	43.0
Native American	56.4	40.7	43.8	59.1
Group isolation				
White	72.8	56.5	74.6	81.8
Black	50.6	58.9	40.7	49.2
Hispanic	57.0	63.9	52.6	43.3
Asian	21.9	28.0	17.7	9.9
Native American	29.6	8.2	16.8	50.3
Poverty of classmates				
White	40.3	45.5	33.7	53.7
Black	69.3	75.6	60.1	75.0
Hispanic	64.9	70.4	59.7	64.0
Asian	40.4	50.0	31.8	53.1
Native American	64.2	64.2	54.5	71.8
School reading proficiency (percentile within state)				
White	53.3	51.8	57.1	44.4
Black	30.7	25.3	37.6	31.4
Hispanic	34.6	30.1	38.9	35.7
Asian	57.1	53.8	60.7	41.6
Native American	35.9	36.3	44.1	29.4
School math proficiency (percentile within state)				
White	51.5	49.7	54.8	44.3
Black	31.7	26.3	38.2	33.4
Hispanic	36.8	33.1	40.5	37.1
Asian	56.1	53.6	59.0	42.5
Native American	36.1	36.4	43.8	30.1

Table 4

Segregation (D) and average values of other school characteristics by census region and metro-plus location

	NORTHEAST				MIDWEST			
	National	Urban	Suburban	Rural	National	Urban	Suburban	Rural
Segregation from whites (D)								
Black	73.6	70.1	61.6	40.3	72.8	68.7	61.6	44.4
Hispanic	66.8	62.2	57.2	38.2	57.2	56.8	47.4	36.2
Asian	52.9	52.2	45.3	36.5	50.8	45.1	45.1	49.5
Native American	65.4	55.9	63.6	66.1	60.3	44.9	41.7	63.4
Group isolation								
White	80.2	54.1	81.7	91.7	81.7	64.2	82.9	89.0
Black	49.1	59.7	34.2	12.1	57.2	67.0	44.1	12.5
Hispanic	47.5	55.1	40.1	20.4	41.8	52.4	35.0	30.0
Asian	25.0	35.4	18.2	3.0	14.1	20.1	10.8	3.9
Native American	8.3	2.5	6.0	26.4	27.9	14.5	3.4	45.8
Poverty of classmates								
White	28.4	53.9	22.1	43.1	39.0	48.4	31.7	48.3
Black	68.8	80.9	50.6	48.8	70.5	78.0	58.1	59.4
Hispanic	67.7	81.5	52.3	49.8	64.2	77.2	52.4	59.9
Asian	41.9	71.3	21.1	39.5	37.2	49.4	26.9	48.9
Native American	51.8	75.3	33.8	54.7	60.0	66.8	40.5	65.8
School reading proficiency (percentile within state)								
White	53.8	42.8	58.0	40.4	50.7	43.7	56.5	43.3
Black	26.8	21.6	34.9	36.2	24.1	18.4	33.7	36.4
Hispanic	29.8	24.4	36.1	34.0	30.3	23.0	37.5	32.7
Asian	55.0	47.0	61.3	43.0	52.2	43.8	59.9	41.6
Native American	38.7	29.8	48.3	30.3	31.3	26.0	48.1	26.4
School math proficiency (percentile within state)								
White	51.8	44.4	55.0	40.6	49.5	42.7	54.4	43.7
Black	26.9	22.1	34.3	35.9	24.6	19.5	33.4	36.4
Hispanic	31.4	27.4	36.1	33.1	31.0	24.7	36.7	35.0

	SOUTH				WEST			
	National	Urban	Suburban	Rural	National	Urban	Suburban	Rural
Asian	55.9	52.6	58.7	41.8	49.8	41.2	57.4	41.6
Native American	39.4	32.0	46.2	35.6	30.8	26.6	47.4	25.4
Segregation from whites (D)								
Black	57.5	58.6	49.7	44.0	59.0	58.9	53.6	45.9
Hispanic	48.3	48.4	44.7	34.9	55.7	57.4	50.1	37.1
Asian	45.5	34.9	43.4	42.9	49.2	45.3	46.5	40.7
Native American	45.5	34.2	38.2	43.0	58.7	42.6	47.0	64.8
Group isolation								
White	69.7	55.8	70.3	76.6	61.0	53.0	62.9	70.5
Black	56.4	67.0	47.4	55.0	26.1	30.3	21.0	19.1
Hispanic	36.4	36.3	39.1	22.6	66.2	70.8	62.3	57.6
Asian	10.8	8.4	12.4	2.5	26.5	30.4	22.4	20.7
Native American	26.9	5.2	17.7	39.2	34.5	7.8	21.3	63.5
Poverty of classmates								
White	49.8	48.6	43.9	62.7	39.4	39.8	35.6	53.0
Black	70.9	75.8	63.7	77.3	63.3	66.8	58.0	67.7
Hispanic	64.7	70.4	61.3	69.7	64.6	67.3	61.6	63.7
Asian	40.4	47.3	36.0	60.7	40.6	43.0	37.2	53.7
Native American	67.1	67.2	58.7	73.8	65.0	61.0	57.9	73.6
School reading proficiency (percentile within state)								
White	53.3	54.0	56.6	46.3	55.8	57.5	57.5	45.3
Black	32.3	27.4	37.6	30.7	37.8	33.8	43.7	35.6
Hispanic	40.7	34.4	43.6	39.7	34.6	31.6	38.0	35.1
Asian	57.0	52.6	59.4	47.7	59.3	58.6	61.3	37.1
Native American	43.1	42.4	48.8	39.1	32.2	38.7	38.8	22.0
School math proficiency (percentile within state)								
White	51.8	50.5	54.7	46.8	53.1	54.5	55.0	42.6
Black	34.1	29.0	39.3	33.2	37.5	34.1	42.7	32.4
Hispanic	42.1	35.0	45.0	42.7	37.4	35.1	40.3	35.6
Asian	55.1	49.3	57.9	48.0	58.1	57.3	60.2	39.2

Native American	42.9	41.4	47.1	40.1	33.0	38.7	40.0	23.0

Table 5

Average segregation (D) and other school characteristics in metro-plus areas where group members are over-represented

	National	Urban	Suburban	Rural
White metro-plus areas				
White isolation	93.0	84.3	94.2	95.3
Poverty: whites' schools	48.7	47.6	41.3	55.4
Reading proficiency: whites' schools	45.9	46.7	49.3	42.8
Math proficiency: whites' schools	46.7	49.0	49.4	43.7
Black metro-plus areas				
Black segregation from whites	61.0	67.9	54.1	47.4
Black isolation	66.3	84.2	55.0	66.9
Poverty: blacks' schools	74.3	83.4	65.7	81.4
Reading proficiency: blacks' schools	29.6	21.7	35.4	28.3
Math proficiency: blacks' schools	32.0	23.3	38.4	30.4
Hispanic metro-plus areas				
Hispanic segregation from whites	56.0	56.6	54.7	46.1
Hispanic isolation	57.6	64.6	54.3	41.6
Poverty: Hispanics' schools	65.3	73.4	60.9	65.2
Reading proficiency: Hispanics' schools	36.6	31.5	39.4	35.4
Math proficiency: Hispanics' schools	38.9	35.9	40.5	37.3
Asian metro-plus areas				
Asian segregation from whites	51.0	50.4	47.6	37.8
Asian isolation	27.9	37.3	21.6	22.4
Poverty: Asians' schools	39.7	51.7	31.0	52.2
Reading proficiency: Asians' schools	58.7	56.2	61.1	35.6
Math proficiency: Asians' schools	58.3	57.6	59.5	38.9
Native American metro-plus areas				
Native American segregation from whites	58.0	37.0	40.7	63.1
Native American isolation	44.9	14.8	32.8	60.2
Poverty: Native Americans' schools	70.4	65.4	63.2	75.2
Reading proficiency: Native Americans' schools	32.5	35.5	41.7	27.5
Math proficiency: Native Americans' schools	33.2	35.8	42.1	28.4